Contents

VOLUME 29, NUMBER 1, MARCH 1990

Hisayoshi Nozaki. Ultrastructure of the extracellular matrix of *Gonium* (Volvocales, Chlorophyta) 1–8

C. Wiencke and M. N. Clayton. Sexual reproduction, life history and early development in culture of the Antarctic brown alga *Himantothallus grandifolius* (Desmarestiales, Phaeophyceae) 9–18

L. Hoffmann, L. Talarico and A. Wilmotte. Presence of CU-phycoerythrin in the marine benthic blue-green alga *Oscillatoria* cf. *corallinae* 19–26

G. A. Fryxell and A. K. S. K. Prasad. *Eucampia antarctica* var. *recta* (Mangin) stat. nov. (Biddulphiaceae, Bacillariophyceae): life stages at the Weddell Sea ice edge 27–38

J. Gaillard et M.-Th. L'Hardy-Halos. Morphogenèse du *Dictyota dichotoma* (Dictyotales, Phaeophyta). III. Ontogenèse et croissance des frondes adventives. 39–53

Shoichiro Suda, Makoto M. Watanabe and Isao Inouye. Morphological observations on the rare quadriflagellate *Pseudocarteria mucosa* (Chlorophyceae, Volvocales) 54–64

Xiaoming Zhang, Isao Inouye and Mitsuo Chihara. Taxonomy and ultrastructure of a freshwater scaly flagellate *Mallomonas torsurata* var. *etortisetifera* var. nov. (Synurophyceae, Chromophyta) 65–73

M. L. Cambridge, A. M. Breeman and C. van den Hoek. Temperature responses limiting the geographical distribution of two temperate species of *Cladophora* (Cladophorales; Chlorophyta) in the North Atlantic Ocean . . 74–85

R. A. Andersen. The three-dimensional structure of the flagellar apparatus of *Chrysosphaerella brevispina* (Chrysophyceae) as viewed by high voltage electron microscopy stereo pairs 86–97

D. J. Garbary and D. J. Belliveau. Diffuse growth, a new pattern of cell wall deposition for the Rhodophyta 98–102

V. Srimanobhas, M. Baba, H. Akioka, T. Masaki and H. W. Johansen. *Cheilosporum* (Corallinales, Rhodophyta) in Japan: a morphotaxonomic study 103–113

S. J. Campbell and Wm. J. Woelkerling. Are *Titanoderma* and *Lithophyllum* (Corallinaceae, Rhodophyta) distinct genera? 114–125

Book Reviews 126–128

Brief Notices 129

Publication Received 129

Announcements 130

Published 1 March 1990

VOLUME 29, NUMBER 2, JUNE 1990

H. J. Sluiman and G. Gärtner. Taxonomic studies on the genus *Pleurastrum* (Pleurastrales, Chlorophyta). I. The type species, *P. insigne*, rediscovered and isolated from soil 133–138

B. A. Whitton, M. Potts, J. W. Simon and S. L. J. Grainger. Phosphatase activity of the blue-green alga (cyanobacterium) *Nostoc commune* UTEX 584 139–145

D. L. Ballantine. *Ceramium bisporum* (Rhodophyta, Ceramiales), an unusual new species from deep-water habitats in the Caribbean 146–149

J. M. Huisman and M. A. Borowitzka. A revision of the Australian species of *Galaxaura* (Rhodophyta, Galaxauraceae), with a description of *Tricleocarpa* gen. nov. 150–172

C. Boyen, B. Kloareg, M. Polne-Fuller and A. Gibor. Preparation of alginate lyases from marine molluscs for protoplast isolation in brown algae . . . 173–181

S. Fredriksen and J. Rueness. Culture studies on *Pterocladia melanoidea* (Schousboe ex Bornet) comb. nov. (Gelidiales, Rhodophyta) 182–190

N. E. Aponte and D. L. Ballantine. The life history in culture of *Callithamnion boergesenii* sp. nov. (Ceramiaceae, Rhodophyta) from the Caribbean . 191–199

T. Yoshida and H. Mikami. *Pollexfenia japonica* sp. nov. (Delesseriaceae, Rhodophyta) from Central Honshu, Japan 200–205

D. S. Littler and M. M. Littler. Systematics of *Udotea* species (Bryopsidales, Chlorophyta) in the tropical western Atlantic 206–252

P. Mariani, C. Tolomio, B. Baldan and P. Braghetta. Cell wall ultrastructure and cation localization in some benthic marine algae 253–262

Published 7 June 1990

VOLUME 29, NUMBER 3, SEPTEMBER 1990

T. J. Entwisle and R. A. Andersen. A re-examination of *Tetrasporopsis* (Chrysophyceae) and the description of *Dermatochrysis* gen. nov. (Chrysophyceae): a monostromatic alga lacking cell walls 263–274

M. Hernández-Mariné, X. Turon and J. Catalan. A marine *Synechocystis* (Chroococcales, Cyanophyta) epizoic on didemnid ascidians from the Mediterranean Sea 275–284

C. M. Sullivan, T. J. Entwisle and K. S. Rowan. The identification of chlorophyll *c* in the Tribophyceae (= Xanthophyceae) using spectrophotofluorometry 285–291

L. Talarico. R-phycoerythrin from *Audouinella saviana* (Nemaliales, Rhodophyta). Ultrastructural and biochemical analysis of aggregates and subunits 292–302

M. N. Clayton and C. Wiencke. The anatomy, life-history and development of the Antarctic brown alga *Phaeurus antarcticus* (Desmarestiales, Phaeophyceae) 303–315

C. Destombe and A. Cembella. Mating-type determination, gametic recognition and reproductive success in *Alexandrium excavatum* (Gonyaulacales, Dinophyta), a toxic red-tide dinoflagellate 316–325

I. Hawes. Effects of freezing and thawing on a species of *Zygnema* (Chlorophyta) from the Antarctic 326–331

H. V. Singh and B. R. Chaudhary. Nutrient effects on the formation of oogonia in *Oedogonium hatei* (Chlorophyta) 332–337

E. Schnepf and M. Melkonian. Bacteriophage-like particles in endocytic bacteria of *Cryptomonas* (Cryptophyceae) 338–343

W. Eikrem and J. Throndsen. The ultrastructure of *Bathycoccus* gen. nov. and *B. prasinos* sp. nov., a non-motile picoplanktonic alga (Chlorophyta, Prasinophyceae) from the Mediterranean and Atlantic 344–350

M.-Th. L'Hardy-Halos and J. Rueness. Comparative morphology and cross-ability of related species of *Aglaothamnion* (Rhodophyta). 351–366

J. A. Phillips, M. N. Clayton, I. Maier, W. Boland and D. G. Müller. Sexual reproduction in *Dictyota diemensis* (Dictyotales, Phaeophyta) 367–379

G. Furnari and M. Cormaci. Fertile gametophytes of *Balliella cladoderma* (Ceramiaceae, Rhodophyta) from the Mediterranean (Research Note) . . 380–384

In Memoriam 385–387

Book Review 388–389

Announcement 390

Published 13 September 1990

VOLUME 29, NUMBER 4, DECEMBER 1990

E. Martínez. The Conchocelis-phase of *Porphyra* (Rhodophyta) in the intertidal of San Juan Island, Washington, USA 391–395

F. Kasai and T. Ichimura. Temperature optima of three closely related mating groups of the *Closterium ehrenbergii* (Chlorophyta) species complex. . 396–402

H. N. Trick and C. M. Pueschel. Cytochemistry of pit plugs in *Bossiella californica* (Corallinales, Rhodophyta) 403–409

H. Nozaki and T. Kuroiwa. *Volvulina compacta* sp. nov. (Volvocaceae, Chlorophyta) from Nepal 410–417

A. K. S. K. Prasad, J. A. Nienow and R. J. Livingston. The genus *Cyclotella* (Bacillariophyta) in Choctawhatchee Bay, Florida, with special reference to *C. striata* and *C. choctawhatcheeana* sp. nov. 418–436

Ø. Moestrup. Scale structure in *Mantoniella squamata*, with some comments on the phylogeny of the Prasinophyceae (Chlorophyta) 437–442

VOLUME 29, NUMBER 4, DECEMBER 1990

D. F. Kapraun and M. J. Shipley. Karyology and nuclear DNA quantification in *Bryopsis* (Chlorophyta) from North Carolina, USA 443–453

S. Yu and M. Pedersén. The α-galactosidase of *Gracilaria tenuistipitata* and *G. sordida* (Gracilariales, Rhodophyta) 454–460

F. R. Trainor and P. F. Egan. Phenotypic plasticity in *Scenedesmus* (Chlorophyta) with special reference to *S. armatus* unicells 461–469

B. A. Boczar and A. C. Palmisano. Photosynthetic pigments and pigment-proteins in natural populations of Antarctic sea-ice diatoms 470–477

O. Necchi Jr and T. J. Entwisle. A reappraisal of generic and subgeneric classification in the Batrachospermaceae (Rhodophyta) 478–488

M. Verlaque. Contribution à l'étude du genre *Predaea* (Rhodophyta) en Méditerranée 489–500

E. L. Rice and C. J. Bird. Relationships among geographically distant populations of *Gracilaria verrucosa* (Gracilariales, Rhodophyta) and related species 501–510

M. W. Fawley, N. Osterbauer, C. M. Lee and S. Jiao. The light-harvesting complex of *Mamiella gilva*: a character linking scaly and naked members of the Micromonadophyceae (Chlorophyta) 511–514

D. F. Chappell, C. J. O'Kelly, L. W. Wilcox and G. L. Floyd. Zoospore flagellar apparatus architecture and the taxonomic position of *Phaeophila dendroides* (Ulvophyceae, Chlorophyta) 515–523

M. S. Vigna. Silica-scaled, subtropical Chrysophytes from the Uruguay River, Argentina (Research Note) 524–529

B. R. Oates and K. M. Cole. Cell-wall surface features on *Desmarestia ligulata* and *D. viridis* (Phaeophyta) (Research Note) 529–532

G. Furnari and M. Cormaci. A sister taxon of *Laurencia minuta* in the Mediterranean: *L. minuta* ssp. *scammaccae* ssp. nov. (Rhodophyta) (Research Note) 532–536

R. A. Lewin. Calcification of cell walls of *Chlamydomonas* (Volvocales, Chlorophyta) on agar media (Research Note) 536–540

In Memoriam 541–542

Book Review 543

Announcements 544–545

Indexes to Volume 29 547–551

Published December 18, 1990